



Updated: 26/08/2018

Syllabus for



P09 – Engineering Product Development (EPD) part 4: Engineering Management

Credits	5.0
Examiners	Björn Fagerström (Mats Magnusson, Anders Warell, Anna Öhrwall Rönnbäck)
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Target group	Professionals and PhD candidates in product development research and practice.
Prerequisites	MSc in Engineering or similar.
Aim	The course aims to provide a basic understanding and knowledge of research in engineering management of product development in industrial contexts.
Fee for industrial members	7 500 SEK

Teachers/tutors



Björn Fagerström, Professor in Product Development, Mälardalen University (Mdh). bjorn.fagerstrom@mdh.se

Björn Fagerström works as general manager at Inocean AB and has been professor/adjunct professor at Mälardalen University since 2005. Björns main research interest is directed towards project management, decision making, product structuring and R&D management.



Mats Magnusson, Professor of Product Innovation Engineering, Royal Institute of Technology (KTH) mats.magnusson@kth.se

Mats Magnusson is professor of Product Innovation Engineering at KTH Royal Institute of Technology in Stockholm and visiting professor at LUISS School of Business and Management in Rome. His research activities cover a wide range of topics in the fields of innovation management, product development, R&D management, and strategic management.



Anders Warell, Professor in Industrial Design, Lund University.

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Anders Warell is research director in Industrial design and Innovation Engineering at the Department of Design Sciences, Lund University. He is also guest professor in Industrial Design at Luleå University of Technology. Research areas include product aesthetics and communication, user experiences, user centric design and design thinking.



Anna Öhrwall Rönnbäck, Professor in Product Innovation, Luleå University of Technology. anna.ohrwall.ronnback@ltu.se

Anna Öhrwall Rönnbäck is chaired professor of Product Innovation, Luleå University of Technology and guest professor at the division of Industrial Economics, Linköping University. Project manager since 2002 of Kunskapsförmedlingen and Kunskapsturnén. Research areas cover innovation management, product development and business development.

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Learning outcomes

Upon completion of the course the participants should have:

- Improved their knowledge of research on engineering management, especially related to product development in industrial contexts.
- Gained increased awareness of risks and critical elements in engineering, and applicable tools and methods for efficient execution of product development.
- Gained an increased understanding of the connection between strategy and operations in management of product development (in industrial contexts).
- Improved their ability to critically review and make use of relevant research literature applied to engineering management.
- Gained enhanced awareness of ethics and dilemmas related to engineering management.
- Obtained the ability to formulate engineering management challenges and opportunities in industrial contexts and in society at large.
- Improved their ability to communicate orally and in written form about engineering management in the EPD process in a research context.

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Course Outline

- The course is organized in 4 sessions; one web based and three physical ones.
- **1st session Course introduction 27/8 2018**
Time: 15.00-16.00 via **WEB – Skype** (invitation from Björn Fagerström)
Content: Course introduction (topic, readings and assignments). Introduction of literature. Present the course assignments, (1): Literature review and (2) Industrial case project. Planning of physical meetings and the industrial case projects. Confirmation of all dates.
Aim: To give an overview of the course content and planning. For participants who cannot attend this skype session, a self-study material is available (please contact Björn Fagerström).
- **2nd session: Strategy, processes and execution (27 Sept)**
Time: 08.30-16.00
Venue: Vinngroup, Göteborg
Content: Company strategy, Business Modeling and Product strategies and management (mission, vision, goals, values, branding, R&D/R&I strategy, product portfolio, product architectures and risks, scenario development and trends). Product development and engineering processes and execution (integrated/lean product development, project management, decision making and managing complexity). Industrial design (user perceptions and experiences, design aspects related to product development and company strategy). State of practice. Planning of individual course assignments (research design).
Aim: To give an overview of the role and importance of engineering management, specifically for product development in an industrial context.
- **3rd session: Organization and knowledge management (23 October)**
Time: 08.30-16.00 (possible evening activity Oct 22)

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Venue: KTH, Stockholm

Content: Organization of product development. Innovation capability and creativity. Information and knowledge management. Communication. Teambuilding and Leadership. Research methods for engineering management. Course participants' presentation of their (1) literature reviews, and (2) progress of Industrial case projects.

Aim: To give further insights of some critical aspects and how to conduct research within the area of engineering management.

- **4th session: Research and practice of engineering management, course project presentation (3 Dec)**

Time: 8.30-16.00+evening activity

Venue: TBD

Content: Participants' presentation of their course assignments. Discussion, feedback and reflections on the industrial case projects. Condensed summary of course content. Evaluation of the course and learning outcomes.

Aim: To share knowledge through the course participants' industrial case projects as illustration of various aspects of engineering management research. Discuss outcomes of the course.

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Organisation

The course is organized in the following way:

The first session is an online meeting (Skype), where the course is introduced and the course assignments are presented. **The second and third sessions** provide a condensed mix of theory and hands on exercises, including the industrial view on engineering management for product development. The course provides an overview to the subjects introduced, with the opportunity for each participants to further study selected parts indepth in the course assignments. The participants' literature assignment is presented at the third session. **The final session** includes presentation of participants' project assignment, discussions to conclude the course, and course evaluation.

Addresses and recommended hotels:

Session 2: Gothenburg at "Vinngroup", Kvarnbergsgatan 2, at walking distance from central station.

Recommended hotel: Hotel Örgryte (appr. 900 SEK/night), walk or bus to Kvarnbergsgatan. *Hotels in Göteborg is a bit demanding these days, so please book well in advance.*

Session 3: KTH. Further details will be provided.

Recommended hotel: Elite Hotel Arcadia, Körsbärsvägen 1, Stockholm. (appr. 900 SEK/night) reservation.arcadia@elite.se

Session 4: Place to be decided, depends on course participants' preferences. Includes evening activity.

Course assignments for each participant:

- (1) Literature review
- (2) Industrial case project

Course assignments shall be submitted during the course, and a revised version of the industrial case project report can be submitted no later than two weeks after the final session.

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The course is part of the 20 hp four-module-PhD-course Engineering Product Development, please refer to: <http://www.productdevelopmentacademy.se>

Literature

Selected recommended literature (papers and/or book chapters) are introduced at the first session and complemented during the course.

Examination

The course is examined through active participation at the sessions, presentation of course assignments including the written report presented and delivered at the end of the course.

Assignments will be reviewed and commented by the teachers. Björn Fagerström is the course examiner.

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